substantially the same means, with better results, is not such invention as will sustain a patent.

Patents claiming merely improvements in devices already well exploited in the prior art must be limited strictly to the forms described in the claims.

213 Fed. Rep. 789, affirmed.

THE case is stated in the opinion.

Mr. Taylor E. Brown, with whom *Mr. Clarence E. Mehlhope* was on the brief, for petitioner.

Mr. Frederick P. Fish and *Mr. Frank F. Reed*, with whom *Mr. Edward S. Rogers* was on the briefs, for respondent.

MR. JUSTICE CLARKE delivered the opinion of the court.

On March 26, 1909, The Railroad Supply Company, petitioner, commenced this suit against The Elyria Iron & Steel Company in the Circuit (now District) Court for the Northern District of Ohio, claiming infringement of claim No. 8 of United States Letters Patent No. 538,809, granted May 7, 1895, of claims Nos. 1, 2 and 3 of Patent No. 691,332, granted January 14, 1902, and of claims Nos. 7 and 9 of Patent No. 721,644, granted February 24, 1903. All of these patents, granted to B. Wolhaupter, were acquired by the petitioner, and each of the three purported to describe a new and useful improvement in railroad tie-plates.

Such proceedings were had in the case that on March 4, 1912, the District Court decided that the petitioner's patents were not infringed by the device manufactured and sold by the defendant.

On appeal to the Circuit Court of Appeals for the Sixth Circuit, that court on April 7, 1914, affirmed the decree of the District Court dismissing the bill, and held in its

opinion that the claims of the patents relied upon were void for want of patentable novelty. This decree is now here for review on certiorari.

A railroad tie-plate, sometimes called a "wear plate," is a rectangular piece of metal, originally with both surfaces flat, designed to be placed upon the tie immediately under the rail, for the purpose of protecting the tie from the wear, which in soft wood is very great, incident to the vibration of the rail caused by passing engines and trains and for the purpose of holding the rail more firmly in place than it could otherwise be held by the spikes without the plate, thereby preserving the gauge of the track.

In the early days of railroading when engines and cars were small and light, when speed was comparatively slow and when hardwood, which held the spikes firmly in place, was abundant and cheap, such plates were little used; but the increase in weight of rails and rolling stock, the higher speed of trains and the necessary use of the cheaper soft woods for ties have brought them into extensive use. The general use of these plates with heavy rolling stock and traffic presented the problem of making them as strong and inexpensive as possible and in a form such that they would adhere firmly to the ties while doing the least possible damage to the fibre of the wood.

The statement of this problem shows convincingly that even at the beginning it offered a very limited field for invention, if, indeed, it presented any field at all for the exercise of that inventive genius which it is the policy of the law to protect and reward with a monopoly for seventeen years.

The claims of the patents declared on are as follows: Claim 8 of Patent No. 538,809 reads:

"A railway-tie plate formed on the under side with devices more or less sharpened adapted to penetrate and engage the tie, and on its upper side with a series of flanges on which the rail rests, substantially as described."

It would be difficult to write in more general terms a description of any plate, whether channeled, corrugated, grooved or ribbed on both sides.

Claims Nos. 1 and 2 of Patent No. 691,332, differ so slightly that No. 1 will suffice:

"A railway-tie plate provided on its upper side with one or more flanges on which the rail may rest or by which it is directly sustained and on the under side with one or more tie-engaging flanges extending parallel with the upper flanges and directly beneath the latter, substantially as described."

Claims 7 and 9 of Patent No. 721,644 are so similar that only No. 7 need be quoted:

"A tie-plate provided in its rail-supporting surface with transverse grooves or channels, and at one margin of said supporting surface with a transverse rail-abutting shoulder."

Wolhaupter the grantee of the three patents was a civil engineer employed by a railroad company and he testifies that he first turned his attention to tie-plates for the purpose of improving them "in the year 1893 or early in 1894" and the earliest of his three patents in suit is dated May 7, 1895.

The earliest patent for a "wear" or tie-plate by that specific name, which is shown by this record, was issued in 1881 and between that date and the date of the issuing of the first patent in suit to Wolhaupter in 1895 twenty-six patents were issued, and in the seven years between 1895 and 1902, when Wolhaupter's second patent in suit was issued, nineteen more patents were issued for various forms of this simple device.

Thus it is seen that Wolhaupter came late into this narrow, and even then much exhausted, field of investigation and in his first patent (not here in suit), dated December 11, 1894, he claims invention for placing one, or permissibly two, "elongated divided ridges" on the under

side of such a plate to engage the tie and on the upper side a series of ridges parallel with those on the lower side, but adapted after being rolled to being cut away to form a seat for the rail. There is no claim as to the relative positions of the ridges on the two faces of the plate.

In his second patent (the first in suit), his claim of invention is for "one or more" flanges "more or less sharpened" (not divided now) on the under side of the plate to engage the tie, and on the upper side a series of flanges (ridges) on which the rail may rest. The flanges (ridges) on the upper surface must not be placed vertically above the flanges or ridges on the lower and there is no provision for cutting them away for a rail seat as in the first patent. The dominating thought of this patent is the cutting of the plate "on a diagonal line with respect to the rail flange," but as this form of plate is not claimed by the patentee in his later patents, and as no merit is claimed for it in the testimony in the record, it will be neglected.

In his third patent Wolhaupter's inventive genius placed the flanges on the under side parallel with and directly beneath those on the upper side of the plate, instead of between them as in the second patent, or regardless of either position as in the first.

In his fourth patent the flanges on the lower side are given a position "transverse" to the ridges on the upper side.

In the first three of petitioner's patents the flanges on both surfaces of the plate are for use parallel to the grain of the tie and transverse to the length of the rail. In the fourth patent the flanges on the under side are described in the specifications and drawings as transverse to, but in claim four as parallel to, the grain of the tie.

The minute and obviously wholly tentative variations, thus described, in the plates in the Wolhaupter patents, are fairly illustrative of the slight differences in form given to this simple device on which this record shows forty-

five separate patents were granted during the twenty-two years between 1881 and 1903.

This discussion of the record and reference to the respondent's patents brings us to the question, Do the claims of these patents describe an "invention or discovery" or "a new and useful . . . manufacture . . . or improvement thereof," such as our patent laws were designed to protect?

We have seen that long before Wolhaupter's patents tie-plates were used for the purposes for which his plates were designed. It was certainly obvious that if wedge shaped flanges, or ribs or claws, or other downward projections, were placed on the under side of such plates they would penetrate the ties when weight was put upon them and thus assist in holding the rail in place.

Very certainly it was also general knowledge before 1895 that if one wished to reduce the weight of a plate without loss of strength this could be done by using channel iron, angle iron or corrugated iron, or, which comes to the same thing, by having the plate made with flanges or ribs (*Servis Railroad Tie Plate Co.* v. *Hamilton Steel & Iron Co.*, 8 Can. Exch. Rep. 381), and the placing of flanges on the upper side of such plates to engage the outer flange of the bottom of the rail, and thus to receive the lateral thrust caused by the flanges of the wheels tending to spread the rails, was also obvious and well known before Wolhaupter's patents.

To the obviousness of the elements necessary to the solution of this problem must be added the state of the art, if such it may be called, when Wolhaupter, late in 1893 or early in 1894, began, as he says, the investigation of tie-plates and "familiarized himself with the literature of the subject." He testifies that he had seen the tie-plates of Servis (patented 1881, No. 249,407; 1884, No. 294,816) and of Goldie (patented 1887, No. 356,760; 1890, No. 426,530; 1891, No. 457,584; 1891, No. 457,585, and

1892, No. 485,030) and he is presumed by the law to have had all prior patents before him when he applied for his patent. *Duer* v. *Corbin Cabinet Lock Co.*, 149 U. S. 216, 223; *Mast, Foos & Co.* v. *Stover Mfg. Co.*, 177 U. S. 485, 493.

In the plates of Servis, Wolhaupter saw a plate with "a flange or flanges formed on the lower side" to engage the tie lengthwise of the grain of the wood and, of course, transverse to the rail, and in the Goldie patents he saw in No. 457,584 "a triangular tooth like projection" extending downward from the bottom of the plate and a raised shoulder on the upper side to receive the lateral thrust of the edge of the rail flange, and in patent No. 485,030 he saw a plate with two downward projecting ribs to engage the tie, with a shoulder on the upper side to receive the thrust of the rail, and with a "transverse depression" in the upper surface, and bearings or flanges on each side of this depression to receive and support the base of the rail.

We thus have Wolhaupter confessing that before he applied for a patent he had knowledge of tie-plates with "ridges," "flanges" and "teeth" projecting downward from the under side of them to engage the tie, differing at most only in form, and in this but slightly, from the similar downward projecting flanges "more or less sharpened" which appear in all three of his patents in suit; that he had knowledge of plates with a shoulder on the upper surface to receive the thrust of the side of the bottom of the rail, not differing from the "rail abutting shoulder" shown in all three of his patents, and that he also had knowledge of the latest Goldie patented plate, with the upper surface "channeled" by having a depression extending across the plate under the central portion of the bottom of the rail and with a bearing on each side of it to support the rail.

It is thus made very clear that the only appearance

even of novelty or of invention in the Wolhaupter plates is in their having flanges on the upper surface, on which it is intended the rail shall rest, for downward extending flanges on the under side and the rail abutting shoulder on the upper side are found in earlier patents in almost precisely the form which he gave to them. But such flanges on the upper surface of the Wolhaupter plate cannot constitute of themselves patentable invention or novelty, for it is very clear, as we have already said, that a resort to channels, grooves and corrugations was a familiar method of reducing the weight and thereby the cost of iron plates without decreasing their strength, long before the Wolhaupter patents, and this form was, therefore, one to which any skilful mechanic would turn to accomplish the purpose that Wolhaupter claimed for it, and that others did so resort to this form is sufficiently shown by reference to the Wells patent, No. 203,570 (1878), the Wilson patent, No. 522,867 (1894) and the Dunham patent, No. 469,386 (1892).

With these facts before him the most that can be said for the patents in suit is that they gave a somewhat different form to three features which were perfectly familiar and were similarly grouped in prior forms of tie-plates but without giving to any of them any new function and without accomplishing by them any new result. This brings the patents within the principle so often declared that "a mere carrying forward of the original thought, a change only in form, proportions, or degree, doing the same thing in the same way, by substantially the same means, with better results, is not such an invention as will sustain a patent." *Roberts* v. *Ryer*, 91 U. S. 150; *Belding Mfg. Co.* v. *Challenge Corn Planter Co.*, 152 U. S. 100; *Market Street Cable Ry. Co.* v. *Rowley*, 155 U. S. 621, 629.

The device involved in these patents is so simple and familiar in all of its forms that a description of it seems

sufficient to visualize it to the reader, but cuts of it in various forms may be found in the reported decisions of this case, *Railroad Supply Co.* v. *Elyria Iron & Steel Co.*, 213 Fed. Rep. 789, and in the report of the case, involving the same claims of the same patents, in the Seventh Circuit, to be found in *Railroad Supply Co.* v. *Hart Steel Co.*, 193 Fed. Rep. 418 and 222 Fed. Rep. 261.

Clearly persuaded as we are that the slight variations claimed for the patents in suit from the plates which had gone before do not constitute patentable invention we cannot consent to further extend this discussion by a minute comparison of them with earlier patents appearing in the record, but we content ourselves with adopting as comment not to be improved upon in such a case as we have here the following from a former decision of this court:

"The design of the patent laws is to reward those who make some substantial discovery or invention, which adds to our knowledge and makes a step in advance in the useful arts. Such inventors are worthy of all favor. It was never the object of those laws to grant a monopoly for every trifling device, every shadow of a shade of an idea, which would naturally and spontaneously occur to any skilled mechanic or operator in the ordinary progress of manufactures. Such an indiscriminate creation of exclusive privileges tends rather to obstruct than to stimulate invention. It creates a class of speculative schemers who make it their business to watch the advancing wave of improvement, and gather its foam in the form of patented monopolies, which enable them to lay a heavy tax upon the industry of the country, without contributing anything to the real advancement of the arts. It embarrasses the honest pursuit of business with fears and apprehensions of concealed liens and unknown liabilities to lawsuits and vexatious accountings for profits made in good faith." *Atlantic Works* v. *Brady*, 107 U. S. 192, 200.

We add that each of the patents of the petitioner being in terms for an "improvement in tie-plates," the state of the "prior art" as described in this opinion requires that they be limited strictly to the form described in the claims, and therefore the patents in suit, even if they had proved valid, would not have been infringed by the plates manufactured by the defendant.

The decree of the Circuit Court of Appeals is

Affirmed.

MR. JUSTICE DAY did not take any part in the decision of this case.